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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/939,647 | 08/28/2001 | Shigeru Umehara | N99147USDIV | 5529 |

21254 7590 07/14/2004

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EXAMINER

ALANKO, ANITA KAREN

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|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1765

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/939,647 | UMEHARA, SHIGERU | |
| | Examiner | Art Unit | |
| | Anita Alanko | 1765 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/27/04 amdt.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-20, 23, 24 and 34 is/are rejected.
- 7) ☒ Claim(s) 21, 22 and 25-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/535,741.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: although shown in the figures, the term “adjoins” (claim 18) is not explicitly recited in the specification. Examiner interprets adjoins to mean directly joining, i.e., touching.

The disclosure is objected to because of the following informalities: the term “semispherical” should recite “hemispherical”. Semispherical is not a proper word.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 16-17, 19-20, 23-24 and 34 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Chong (US 6,093,330).

Chong discloses a method for manufacturing an ink jet recording head (Fig.37-40), comprising:

forming a pressure generating chamber (passageway through which ink flows from 300 to 306 in Fig.37 with pressure generated from heating by 320-322; analogous to 340 and 340' in Fig.40) from a chamber plate 302 with a pair of sides such that said pair of sides comprises a plurality of arcuate portions (see Fig.37).

As to claim 17, the arcuate portions comprise an upper arcuate portion (312-314) and a lower arcuate portion (bottom surface of 304; also shown in Fig.39).

As to claims 19-20, the pair of sides are devoid of a right angle portion and the plurality of arcuate portions are convex in a direction from a interior view of an inner chamber (see Fig.37).

As to claims 23 and 34, as broadly interpreted E_1 and E_2 can equal zero, which Chong discloses (see Fig.37).

As to claim 24, Chong discloses forming a vibrating plate 334,336 on said chamber plate, said vibrating plate forming an upper surface (the upper surface of the passageway) of said pressure generating chamber.

Claims 16-20, 23 and 34 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Farnaam (US 6,036,874).

Farnaam discloses a method for manufacturing an ink jet recording head comprising:

forming a pressure generating chamber 531 from a chamber plate with a pair of sides such that said pair of sides comprises a plurality of arcuate portions (curved sidewalls of 531; Fig.5D).

As to claims 17-18, as broadly interpreted the curved arcuate portions comprise a plurality of portions including an upper portion adjoining a lower arcuate portion (since the claim does not cite that the upper and lower arcuate portions have a different center point from each other).

As to claims 19-20, Farnaam discloses that the sides are devoid of a right angle portion and the plurality of arcuate portions are convex (Fig. 5D).

As to claims 23 and 34, as broadly interpreted E_1 and E_2 can equal zero, which Farnaam discloses (see Fig. 5D).

As to claim 24, Farnaam discloses to form a vibrating plate 510 (analogous to Fig. 1A vibrating plate 10 with circuitry 11,12), said vibrating plate forming an upper surface of said pressure generating chamber.

Allowable Subject Matter

Claims 21-22, 25-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 2/27/04 have been fully considered but they are not persuasive to the extent that they still apply.

The objection to the claims is withdrawn. The 112 rejection is withdrawn. The 102 rejection over Kitahara is withdrawn since Kitahara discloses a rectangular pressure generating chamber, not one with a plurality of arcuate portions.

As to the Chong rejection, applicant argues that the sub surface tunnel 304 of Chong is not a pressure generating chamber. Examiner disagrees since the ink is heated, thereby pressurized, therefore pressure is generated.

Applicant argues that Chong does not disclose that a physical pressure is applied to the ink. These arguments are not commensurate in scope with the claim language, the claims do not cite applying a physical pressure.

Applicant argues that Chong does not disclose a plurality of arcuate portions. However, these curved portions are clearly depicted in Fig.37 and Fig.39. They result from the etching process, which is the same process as used by the instant invention.

Examiner agrees that, as cited in claim 25, Chong does not disclose to form both a vibrating plate on said chamber plate and an ink supply plate on a side of said chamber plate which is opposite to said vibrating plate. Chong machines from one surface of the substrate, and does not have bonding of several plates together to form an ink jet printhead.

As to the Farnaam rejection, applicant argues that Farnaam does not teach to form a pressure generating chamber. However, upon a full reading of Farnaam, it is clear that the “nozzle chamber” of Farnaam is equivalent to the “chamber” of the instant invention. They are called different names, but serve the same function, that of supplying ink to the nozzle for ejection from the inkjet printhead. See the background section of Farnaam (col.1-2).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Examiner repeats here the comment recited in the last office action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita Alanko, whose telephone number is (571) 272-1458. The examiner can normally be reached on M-F 9:00am - 5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anita K. Alanko

Anita K. Alanko
Primary Examiner
Art Unit 1765